

**Paiksed tulekustutussüsteemid. Automaatsed
sprinklersüsteemid. Projekteerimine, paigaldamine
ja hooldus KONSOLIDEERITUD TEKST**

Fixed firefighting systems - Automatic sprinkler
systems - Design, installation and maintenance
CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12845:2005+A2:2009 sisaldab Euroopa standardi EN 12845:2004+A2:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 29.05.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 01.04.2009.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 12845:2005+A2:2009 consists of the English text of the European standard EN 12845:2004+A2:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 29.05.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 01.04.2009.

The standard is available from Estonian standardisation organisation.

ICS 13.220.20

Võtmesõnad: pumbad, veetorud

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

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English Version

**Fixed firefighting systems - Automatic sprinkler systems -
Design, installation and maintenance**

Installations fixes de lutte contre l'incendie - Systèmes
d'extinction automatiques du type sprinkleur - Conception,
installation et maintenance

Ortsfeste Brandbekämpfungsanlagen - Automatische
Sprinkleranlagen - Planung, Installation und Instandhaltung

This European Standard was approved by CEN on 16 April 2004 and includes Amendment 1 approved by CEN on 22 February 2009 and Amendment 2 approved by CEN on 22 February 2009.

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Foreword

This document (EN 12845:2004+A2:2009) has been prepared by Technical Committee CEN/TC 191, "Fixed firefighting systems", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.

A1 This document supersedes **A2** EN 12845:2004 **A2**. **A1**

This document includes Amendment 1, approved by CEN on 2009-02-22 and Amendment 2, approved by CEN on 2009-02-22.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1** and **A2** **A2**.

A1 *deleted text* **A1**

Annexes A to I are normative. The **A1** Annexes J to M **A1** are informative.

This document includes a Bibliography.

It is included in a series of European standards planned to cover:

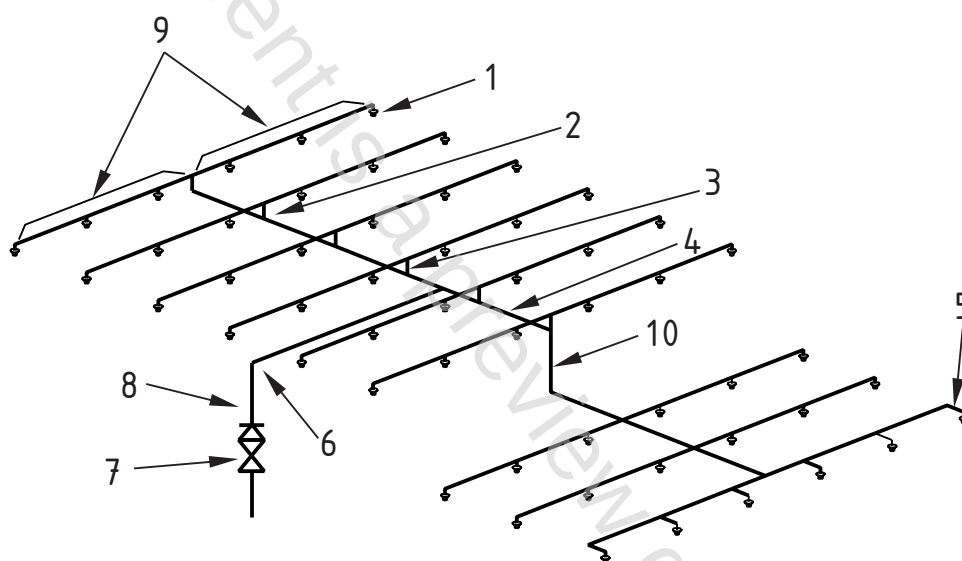
- automatic sprinkler systems (EN 12259 and EN 12845);
- Gas extinguishing systems (EN 12094);
- powder systems (EN 12416);
- explosion protection systems (EN 26184);
- foam systems (EN 13565);
- gas systems (EN 12094);
- hydrant and hose reel systems (EN 671);
- smoke and heat control systems (EN 12101).
- **A1** *deleted text* **A1**

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

An automatic sprinkler system is designed to detect a fire and extinguish it with water in its early stages or hold the fire in check so that extinguishment can be completed by other means.

A sprinkler system consists of a water supply (or supplies) and one or more sprinkler installations; each installation consists of a set of installation main control valves and a pipe array fitted with sprinkler heads. The sprinkler heads are fitted at specified locations at the roof or ceiling, and where necessary between racks, below shelves, and in ovens or stoves. The main elements of a typical installation are shown in Figure 1.



Key

- 1 Sprinkler head
- 2 Riser
- 3 Design point
- 4 Distribution pipe spur
- 5 Arm pipe

- 6 Main distribution pipe
- 7 Control valve set
- 8 Riser
- 9 Range pipes
- 10 Drop

Figure 1 — Main elements of a sprinkler installation

The sprinklers operate at predetermined temperatures to discharge water over the affected part of the area below. The flow of water through the alarm valve initiates a fire alarm. The operating temperature is generally selected to suit ambient temperature conditions.

Only sprinklers in the vicinity of the fire, i.e. those which become sufficiently heated, operate.

The sprinkler system is intended to extend throughout the premises with only limited exceptions.

In some life safety applications an authority might specify sprinkler protection only in certain designated areas and solely to maintain safe conditions for the evacuation of persons from the sprinkler protected areas.

It should not be assumed that the provision of a sprinkler system entirely obviates the need for other means of fighting fires and it is important to consider the fire precautions in the premises as a whole.

Structural fire resistance, escape routes, fire alarm systems, particular hazards needing other fire protection methods, provision of hose reels and fire hydrants and portable fire extinguishers, etc., safe working and goods handling methods, management supervision and good housekeeping all need consideration.

It is essential that sprinkler systems should be properly maintained to ensure operation when required. This routine is liable to be overlooked or given insufficient attention by supervisors. It is, however, neglected at peril to the lives of occupants of the premises and at the risk of crippling financial loss. The importance of proper maintenance cannot be too highly emphasized.

When sprinkler systems are out of service extra attention should be paid to fire precautions and the appropriate authorities informed.

This standard is intended for use by those concerned with purchasing, designing, installing, testing, inspecting, approving, operating and maintaining automatic sprinkler systems, in order that such equipment will function as intended throughout its life.

This standard is intended only for fixed fire sprinkler systems in buildings and other premises on land. Although the general principles may well apply to other uses (e.g. maritime use), for these other uses additional considerations will almost certainly have to be taken into account.

It is a basic assumption that this standard is for the use of companies employing personnel competent in the field of application with which it deals. Only trained and experienced personnel should undertake the design, installation and maintenance of sprinkler systems. Similarly, competent technicians should be used in the installation and testing of the equipment **A1** (see Annex M) **A1**.

This standard covers only the types of sprinkler specified in EN 12259-1 (see annex L).

1 Scope

This standard specifies requirements and gives recommendations for the design, installation and maintenance of fixed fire sprinkler systems in buildings and industrial plant, and particular requirements for sprinkler systems, which are integral to measures for the protection of life.

This standard covers only the types of sprinkler specified in EN 12259-1 (see annex L).

The requirements and recommendations of this standard are also applicable to any addition, extension, repair or other modification to a sprinkler system. They are not applicable to water spray or deluge systems.

It covers the classification of hazards, provision of water supplies, components to be used, installation and testing of the system, maintenance, and the extension of existing systems, and identifies construction details of buildings which are the minimum necessary for satisfactory performance of sprinkler systems complying with this standard.

This standard does not cover water supplies to systems other than sprinklers. Its requirements can be used as guidance for other fixed fire fighting extinguishing systems, however, provided that any specific requirements for other fire fighting extinguishing supplies are taken into account.

A1 deleted text **A1**

The requirements are not valid for automatic sprinkler systems on ships, in aircraft, on vehicles and mobile fire appliances or for below ground systems in the mining industry.

A1 Sprinkler system design deviations may be allowed when such deviations have been shown to provide a level of protection at least equivalent to this European Standard, for example by means of full scale fire testing where appropriate, and where the design criteria have been fully documented. **A1**

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 54-1, *Fire detection and fire alarm systems — Introduction*

EN 54-2, *Fire detection and fire alarm systems — Control and indicating equipment*

EN 54-3, *Fire detection and fire alarm systems — Fire alarm devices — Sounders*

EN 54-4, *Fire detection and fire alarm systems — Power supply equipment*

EN 54-5, *Fire detection and fire alarm systems — Heat detectors — Point detectors*

EN 54-10, *Fire detection and fire alarm systems — Flame detectors — Point detectors*

EN 54-11, *Fire detection and fire alarm systems — Manual call points*

EN 287-1, *Approval testing of welders — Fusion welding — Part 1: Steels*

EN 1057, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1254 (all parts), *Copper and copper alloys — Plumbing fittings*

EN 12259-1, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 1: Sprinklers*

EN 12259-2, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 2: Wet alarm valve assemblies*

EN 12259-3, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 3: Dry alarm valve assemblies*

EN 12259-4, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 4: Water motor alarms*

EN 12259-5, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 5: Water flow detectors*

prEN 12259-12, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 12: Sprinkler pumps*

EN 12723, *Liquid pumps — General terms for pumps and installations — Definitions, quantities, letter symbols and units*

EN 50342-1, *Lead-acid starter batteries — Part 1: General requirements and methods of test*

EN 50342-2, *Lead-acid starter batteries — Part 2: Dimensions of batteries and marking of terminals*

EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60623, *Secondary cells and batteries containing alkaline or other non-acid electrolytes — Vented nickel-cadmium prismatic rechargeable single cells (IEC 60623:2001)*

EN 60947-1, *Low-voltage switchgear and controlgear — Part 1: General rules (IEC 60947-1:2007)*

EN 60947-4, *Low-voltage switchgear and controlgear — Contactors and motor-starters — Electromechanical contactors and motor-starters (IEC 60947-4-1:2000)*

EN ISO 3677, *Filler metal for soft soldering, brazing and braze welding — Designation (ISO 3677:1992)*

ISO 65, *Carbon steel tubes suitable for screwing in accordance with ISO 7-1*

ISO 3046 (all parts), *Reciprocating internal combustion engines — Performance*